



Reporting on Traffic Congestion and Mobility in the Denver Region

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Topics

Introduction and Mobility trends in the Denver Region

Traffic congestion measures

Mitigating Congestion

Incident management and safety

Future of mobility in the Denver region



MOBILITY TRENDS IN THE DENVER REGION

Denver Regional Council of Governments (DRCOG)



- Federal required MPO Metropolitan Planning Organization (transportation)
- 9 ¼ Counties
- Population 3.3 million
- Employment 1.8 million



DRCOG Congestion Management Process (CMP)

- Federal Requirement
- DRCOG Annual Reports since 2006
 - Monitor: VMT; person-, freight/goods-, and vehicle-delay
- Transportation network data
 - Roadway attributes: lanes, speed, crashes, traffic volume, etc.
 - Transit routes and ridership, bicycle and pedestrian facilities
- Results used for evaluation of road, transit, TDM, and bicycle/pedestrian project TIP funding applications









An Efficient and Predictable Development Pattern

A Connected Multimodal Region

A Safe and Resilient Natural and Built Environment

Healthy, Inclusive and Livable Communities

A Vibrant Regional Economy

AHEAD

ON TRACK

BEHIND

NO DETERMINATION

Metro Vision Performance Measures

Residents living in locations affordable to the typical household

Housing near high-frequency or rapid transit Employment near high-frequency or rapid transit Regional employment

Urban center housing Regional population-weighted density

Travel time variation (TTV)

Urban center employment
 Non-single-occupant vehicle (SOV) travel
 Vehicle miles traveled (VMT)

Person delay

Traffic fatalities

Surface transportation greenhouse gas (GHG) emissions

Employment in high-risk hazard areas

Protected open space Housing in high-risk hazard areas

Mitigating impacts of congestion

waytogo

Program of **DRCOG**

Avoid it

Real-Time Information Extra Night in Mountains Flexible Work Hours Telework

How to Mitigate Congestion

Adapt to it

Mobility Choices:

- Alternative modes
- Transit, Walk, Bicycle
- Car/Vanpool

Real-Time Information Efficient Land Use Designs



Alleviate it

Add Lanes / Capacity Improve Operations:

- Traffic Signals

- Signing and Striping
- Access Management
- Incident Management

Expand Transit Facilities



9 million vehicle trips (84 mil. VMT)





Average Daily VMT in the Denver Region (2000 – 2018)



Growth in the Denver Region

- booming economy
- population and job growth
- housing prices/longer commutes
- construction activity







Transportation Infrastructure Changes Since 2013

Over 40 Miles of passenger rail lines







US-36 Bus Rapid Transit and HOT



I-225 Widening

Union Station





Solution Five-Year Travel Trends



+250% vehicle miles traveled

via ride-hailing services

+INFINITY% e-scooter share of vehicle miles traveled



Five-Year Travel Trends





vehicle miles traveled





Five-Year Motor Vehicle Emission Trends



Five-Year Crash and Congestion Trends









Five-Year Freight Trends

+12% -//-Denver International Airport air cargo









TRAFFIC CONGESTION ON MAJOR ROADWAYS





Annual Hours of Delay per Commuter (Texas Transportation Institute)



Location/time specific - DRCOG annual average freeway speeds compared to 2012



What <u>time of day</u> is congestion getting worse? - DRCOG's Busiest Freeways





Congestion Mobility Score

severity:	 How bad does congestion get on the roadway during rush hour?
duration:	 How many hours per day is the roadway congested?
magnitude:	 How many people (traffic volume) are impacted by congestion on the roadway?
reliability:	 How often do crashes or incidents occur on the roadway?





MITIGATING CONGESTION

Congestion Mitigation Toolkit Summary

1. Active roadway management

- A. Traffic signal timing/coordination/equipment
- B. Ramp meters
- C. Access management
- D. Incident management and response
- E. Traveler information mechanisms
- F. Electronic toll collection (ETC)
- G. Roadway signage
- H. Communication connections and surveillance

2. TDM/non-SOV travel options

- A. Transit service and facility expansion
- B. Transit queue-jump lanes and signal priority
- C. Parking and curbside management
- D. Telework and flexible work schedules
- E. Ridesharing services
- F. Off-street multi-use trails (pedestrian and bicycle)
- G. On-street bicycle treatments
- H. Efficient land use and development practices

3. Physical roadway capacity

- A. Intersection turn lanes
- B. Acceleration/deceleration lanes
- C. Hill-climbing lanes
- D. Grade-separated railroad crossings
- E. Interchange redesigns
- F. Roundabout intersections
- G. Managed lanes (toll express, HOV, etc.)
- H. New travel lanes (widening), new roadways

Congestion Mitigation Toolkit





Mitigating impacts of congestion

waytogo

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Alleviate it

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- Access Management
- Incident Management

Expand Transit Facilities

Avoid Congestion



Adapt to Congestion

METRO VISION Our place, our plan.

AN EFFICIENT AND PREDICTABLE DEVELOPMENT PATTERN













Alleviate Congestion

(Minor bottleneck improvement)

I-70 EB from Kipling to Wadsworth (< 1 mile) INRIX Before and After Speed Data August 2016 and August 2017 Weekdays (Middle Three Weeks)



INCIDENT MANAGEMENT & TRAVEL RELIABILITY

Sample 18-Minute Off-Peak Trip



Other Data Source: INRIX Crash on Westbound I-70 near US-6 at 4:00 pm





W.B.



Solution Incident Management



200+ reported crashes every day in Denver region Many more minor incidents and breakdowns



#1 Concern: <u>Safety</u> of persons at the scene or coming upon the scene



Increased travel delays for people and freight in cars, buses, and trucks

BREAKING NEWS DEADLY FOUR-CAR CRASH IN ENGLEWOOD



Incidents and Traffic Congestion and Unreliability

Incidents affect roadway carrying capacity

- Blocking lanes
- Rubber necking
- Snow on pavement

Incidents cause traffic diversions

• Heavy traffic on side streets

Get the information out!

- Alerts and messages
- People can adjust plans
 - Depart at a different time or cancel trip
 - Use a different travel route or mode of travel





Supporting Efforts





LAW ENFORCEMENT | FIRE | EMS | TRANSPORTATION TOWING & RECOVERY | COMMUNICATIONS DRCOG Regional Transportation Operations Working Group

Governor's Task Force on Responder Safety

Standing Program Management Teams



Traffic Incident Management (TIM) Training

Legislation: I-70 Mountain Corridor traction and chain laws



FUTURE OF MOBILITY IN THE DENVER REGION

Growth in the Denver Region





Congestion Forecasts 2018 to 2040 +43% vehicle miles traveled



+89% lane miles of roads congested for 3+ hours



Unpredictable impacts of new mobility services and technology





- Personal habits and preferences
- Mobility services, transit evolution, TNCs, micromobility
- Alternative fueled vehicles
- Connected vehicles
- Automated vehicles











Other plans and projects

regional vision

REIMAGINE RTD TOGETHER, LET'S EXPLORE AND REDESIGN TRANSPORTATION



Road Usage Charge Pilot Program



HOPON BOARD! RTD IS CONDUCTING A FEASIBILITY STUDY TO PRIORITIZE LOCATIONS FOR BUS RAPID TRANSIT IN THE DENVER METRO AREA.



Micromobility Work Group



Annual Reports on Congestion

https://drcog.org/programs/transportation-planning/congestion-management-process



2017 ANNUAL REPORT ON ROADWAY TRAFFIC CONGESTION IN THE DENVER REGION

October 2018



2018 ANNUAL REPORT ON ROADWAY TRAFFIC CONGESTION IN THE DENVER REGION

October 2019

Special topics every year, recently-

- Crashes
- Performance of recently completed projects
- Incident Management
- Freight
- Bottlenecks
- Greenhouse gas reduction targets





QUESTIONS?